

METHOD FOR FABRICATING SEMICONDUCTOR DEVICE USING A NICKEL SALICIDE PROCESS

ABSTRACT OF THE DISCLOSURE

5 A method for fabricating a semiconductor device is provided using a nickel
salicide process. The method includes forming a gate pattern and a source/drain
region on a silicon substrate, forming a Ni-based metal layer for silicide on the silicon
substrate where the gate pattern and the source/drain region are formed, and forming
an N-rich titanium nitride layer on the Ni-based metal layer for silicide. Next, a thermal
10 treatment is applied to the silicon substrate where the Ni-based metal layer for silicide
and the N-rich titanium nitride layer are formed, thereby forming a nickel silicide on each
of the gate pattern and the source/drain region. Then, the Ni-based metal layer for
silicide and the N-rich titanium nitride layer are selectively removed to expose a top
portion of a nickel silicide layer formed on the gate pattern and the source/drain region.
15 Thus, as the N-rich titanium nitride layer is formed on the Ni-based metal layer for
silicide, a silicide residue is prevented from forming a spacer and a field region formed
of a field oxide layer.